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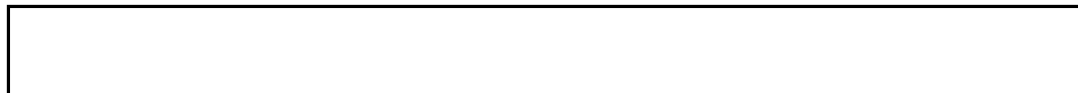
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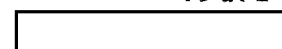
VITAL RECORDS COPY
CHU-CHOU CHEMICAL FERTILIZER PLANT
CHU-CHOU, CHINA

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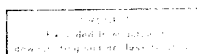
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CHEMICAL AND SCIENTIFIC SECTION
INDUSTRIAL BRANCH, IAD

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FIGURE 1

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CHU-CHOU CHEMICAL FERTILIZER PLANT CHU-CHOU, CHINA

A large fertilizer plant is located in the Chu-chou Non-ferrous Metals Complex (Figure 10) approximately 3.5 nm northwest of the center of Chu-chou. The approximate geographic coordinates of the plant are 27 53N - 113 07E (Figures 1 and 2).

The plant is rectangular in shape with dimensions of approximately 7,600 by 5,000 feet. It is served by spurs of the I-chia-wan railroad and by road.

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This study was made from both overflight and satellite photography covering the period [REDACTED]. The following is a brief description of the processes used in the four sections of the plant which are involved in the production of fertilizer.

SULFURIC ACID PLANT

Pyrites are brought into the plant and stored. These then are roasted to yield sulfur dioxide gas which is passed over a catalyst to form sulfur trioxide. The sulfur trioxide is passed into water to form sulfuric acid, part of which is then used in the synthesis of superphosphate fertilizer (Section 2).

PHOSPHATE FERTILIZER SECTION

Phosphate ore is brought into the plant by rail and then processed, crushed and stored. The crushed ore is treated in the mixing section with sulfuric acid from the adjacent plant to form an acid-rock slurry. The slurry is then placed in large concrete vats or dens for several hours in order to allow completion of the acid reaction. The raw superphosphate is then moved into the curing section where it is dried and cured for several weeks. From the curing section, the superphosphate is conveyed to the final processing building where it is crushed, bagged, and stored for shipment.

PROBABLE CALCIUM CYANAMIDE SECTION

Lime is received by rail and converted to calcium carbide by fusing calcined limestone with coke in electric arc furnaces. Nitrogen is then passed over the calcium carbide in retorts to produce calcium cyanamide.

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CAUSTIC SODA PLANT

Sodium chloride is received by rail and made into a pure solution in the brine preparation tanks. The solution is then electrolyzed to yield chlorine gas and metallic sodium which immediately reacts with the water to form sodium hydroxide or caustic soda. The solution is evaporated and the residue is stored for shipment.

The following list of areas and plant facilities are keyed to the annotated photo enlargement (Figure 8):

1. Sulfuric Acid Plant
 - a. Railroad spur
 - b. Pyrite receiving point
 - c. Sulfuric acid unit
 - d. Acid storage tanks
2. Phosphate Fertilizer Section
 - e. Ore receiving point
 - f. Crushing building
 - g. Ore storage
 - h. Mixing and den section
 - i. Curing section
 - j. Fertilizer bagging, storage and shipping facility
3. Probable Calcium Cyanamide Section
 - k. Limestone receiving and crushing facility
 - l. Coking unit
 - m. Electric arc furnaces
4. Caustic Soda Plant
 - n. Sodium chloride receiving and storage building
 - o. Brine preparation tanks
 - p. Electrolysis building
5. Administration Section
6. Water Treatment Area

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The remaining annotations are keyed to Figure 11:

7. Ammonia Fertilizer Plant

- q. Ammonia synthesis building
- r. Power plant

LEVEL OF ACTIVITY

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The plant was operational as early as [] with production of caustic soda, sulfuric acid and probably calcium cyanamide (Figure 3). [] construction on the phosphate fertilizer section was first noted in the area between the caustic soda plant and the sulfuric acid plant (Figure 4). A large processing building had been completed in this area by [] (Figure 5), and by [] the phosphate fertilizer section was in late stages of construction (Figure 6). The superphosphate production facilities appeared to have been completed by [] (Figure 7), but operational status could not be determined. On photography of [] (Figure 8) the phosphate fertilizer section was noted as definitely being operational. Photo coverage of [] revealed that no further construction activity has taken place (Figure 9).

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Figure 10 shows an ammonia plant under construction which has remained in the early stages of construction []. Progress of construction in this area has been unusually slow; however, a pipeline connecting the power plant with the complex indicates that it might possibly be an area of future expansion. The power plant is operational and the ammonia synthesis building appears complete. Figures 11 and 12 show the same plant as it appeared [] respectively, and they illustrate the lack of progress in construction.

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FIGURE 3

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CHU-CHOU CHEMICAL FERTILIZER PLANT
CHU-CHOU, CHINA
27 53N - 113 07E

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FIGURE 4



CHU-CHOU CHEMICAL FERTILIZER PLANT
CHU-CHOU, CHINA
27 53N - 113 07E

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FIGURE 6

CHU-CHOU CHEMICAL FERTILIZER PLANT
CHU-CHOU, CHINA
27 53N - 113 07E

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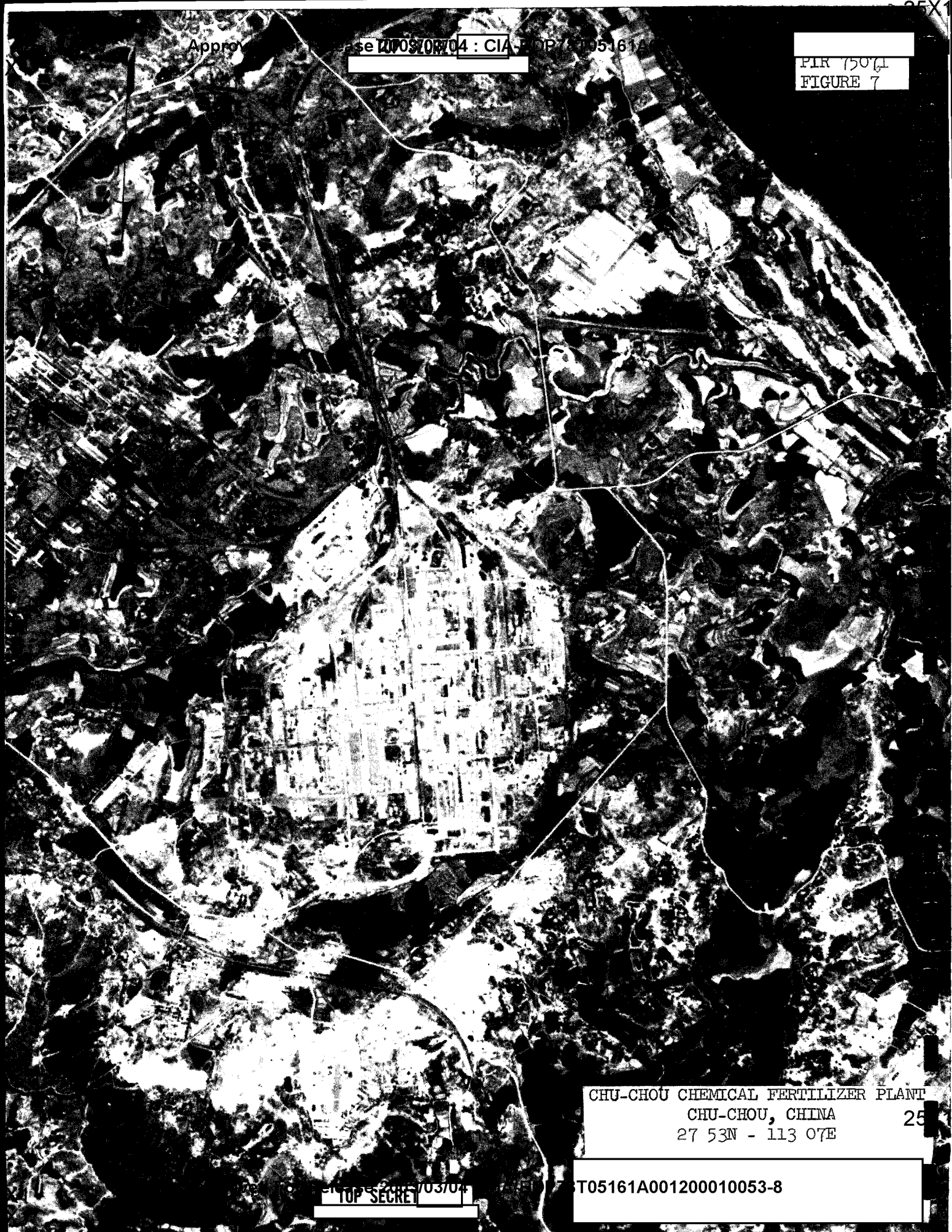
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FIGURE 7



CHU-CHOU CHEMICAL FERTILIZER PLANT
CHU-CHOU, CHINA
27 53N - 113 07E

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FIGURE 8



CHU-CHOU CHEMICAL FERTILIZER PLANT
CHU-CHOU, CHINA
27 53N - 113 07E

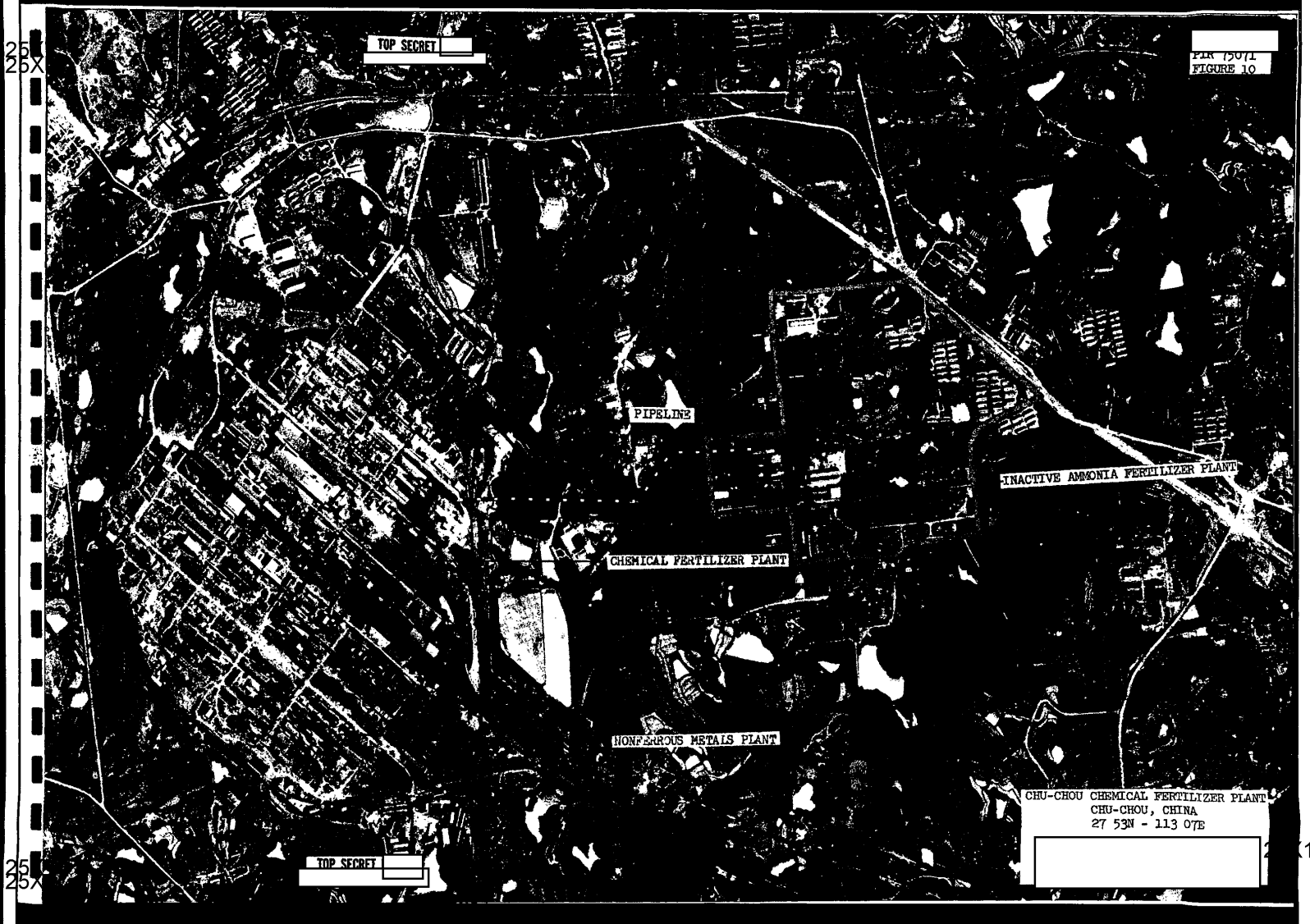
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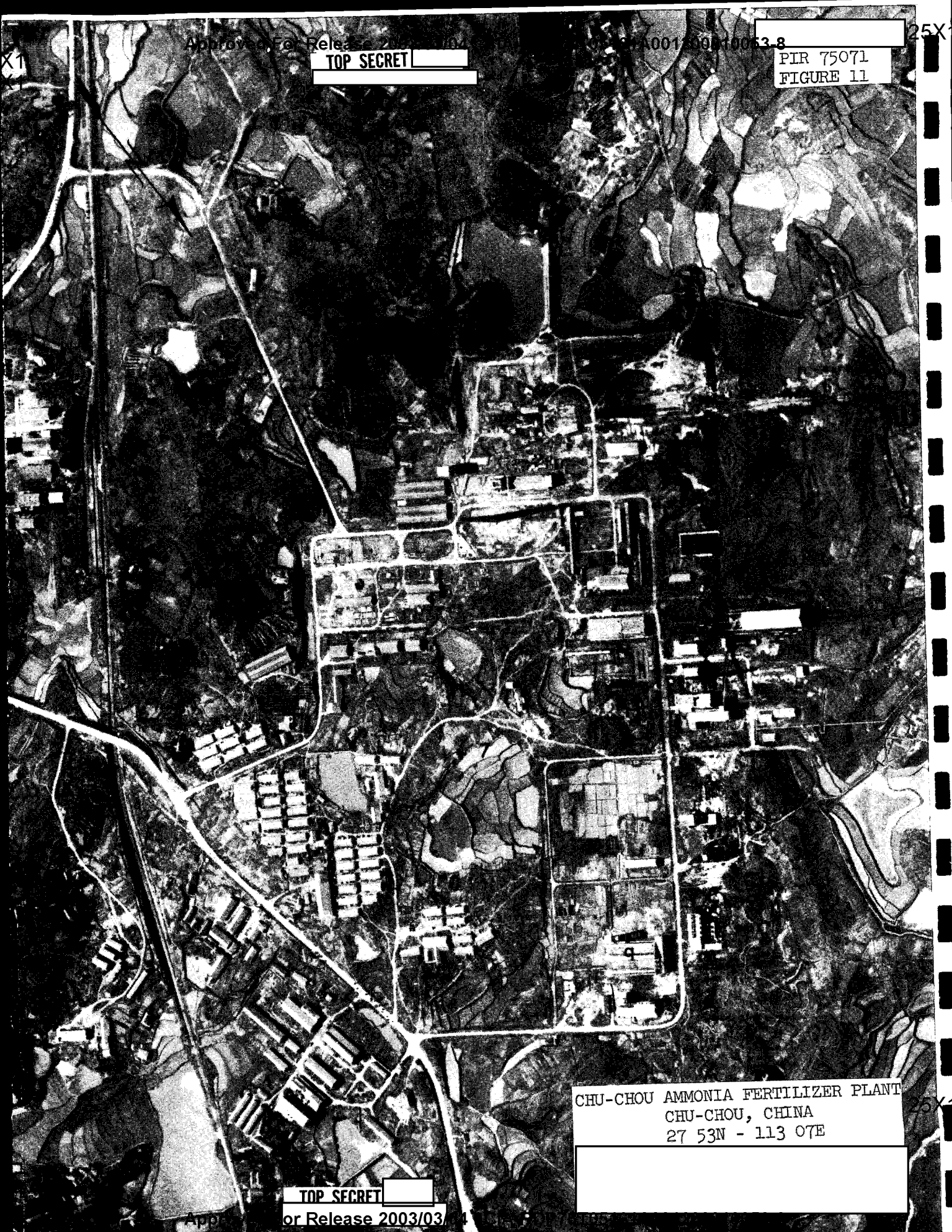
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FIGURE 11



CHU-CHOU AMMONIA FERTILIZER PLANT
CHU-CHOU, CHINA
27 53N - 113 07E

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FIGURE 12

CHU-CHOU AMMONIA FERTILIZER PLANT
CHU-CHOU, CHINA
27 53N - 113 07E

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REFERENCES

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MAPS AND CHARTS

Locator Map, Communist China, 38936 12-63 (For Official Use Only)

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ACIC, U.S. Air Target Chart, Series 200, Sheet 0498-1AL, 2nd Edition,
September 1960, Scale 1:200,000 (SECRET)

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